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19 November 2018

Our ref: 754-NTLGE222494-L01

Taylor Thomson Whitting (NSW) Pty Ltd,
48 Chandos Street
St Leonards NSW 2065

Attention: Robert Mackellar

Dear Robert,

Waste Classification and Site Reuse Assessment of a Proposed Roadway from The Proposed Development to Louisiana Road, Wyong Hospital Expansion Project, Wyong, NSW

1. Introduction

Coffey Services Australia Pty Ltd. (Coffey) has carried out a waste classification and site reuse assessment for a proposed roadway connecting the Wyong Hospital expansion development west through to Louisiana Road. The proposed roadway is approximately 250m long x 10m wide and was assessed to a depth of 1m below ground surface (bgs) The proposed alignment is shown in Figure 1.

Figure 1 - Alignment of the Proposed Road from the Wyong Hospital Expansion through to Louisiana Road

2. Objectives

The objective of the investigation was to provide an assessment of in situ soils along the proposed road alignment for possible on-site reuse and/or assessment of offsite disposal options. The waste classification and assessment of suitability for onsite reuse, were undertaken in accordance with the relevant sections of NSW EPA (2014) *Waste Classification Guidelines, The National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM 1999, amended 2013) and Managing Land Contamination: Planning Guidelines (SEPP 55) - Remediation of Land (1998)*.

3. Scope of works

In order to meet the above objectives, the following works were carried out:

- Collection of fourteen (14) primary soil samples from seven (7) locations along the linear road alignment;
- Laboratory analysis of the soil samples for the following contaminants of potential concern (COPC) (Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), Organochlorine Pesticides (OCP), Total Recoverable Hydrocarbons (TRH), Polycyclic Aromatic Hydrocarbons (PAH) and Benzene, Toluene, Ethylbenzene and Xylene (BTEX); and
- Data assessment and preparation of this letter report.

4. Fieldwork

Fieldwork was undertaken by a Coffey Geotechnical Scientist on 5 October 2018. Two (2) samples were collected at each location from two depths in the upper 1m soil profile (0.1-0.2m and 0.8-0.9m).

The boreholes were drilled using a 3.5 tonne excavator fitted with a 300mm auger attachment (Photo 1). Samples were collected at the target depths directly from the auger (Photo 2) with care taken to lower the risk of cross contamination. The samples were placed into laboratory supplied glass jars (for chemical analysis) and stored in an ice-filled esky for transport to the laboratory for analysis. Dedicated disposable nitrile gloves were used to collect each sample.

A total of fourteen (14) primary soil samples were collected from seven (7) locations TP01, TP02, TP03, TP04, TP05, TP06 and TP07 along the proposed road alignment. The sample locations are shown in the attached Figure A1.

Photo 1: Placement of Borehole using 300mm Auger Attachment

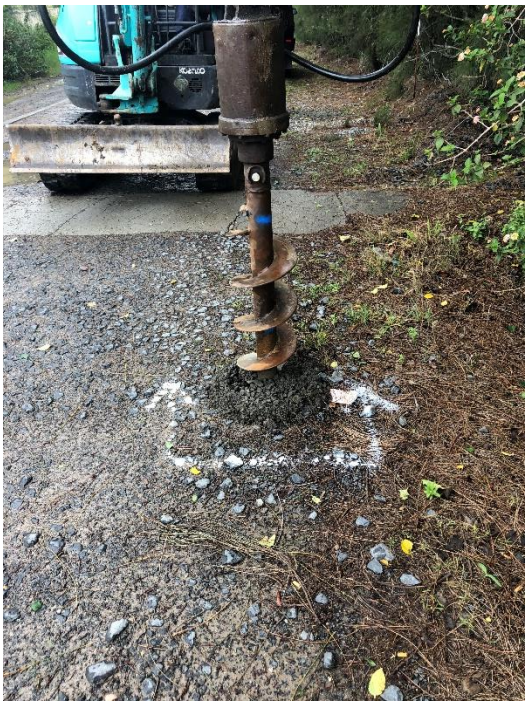
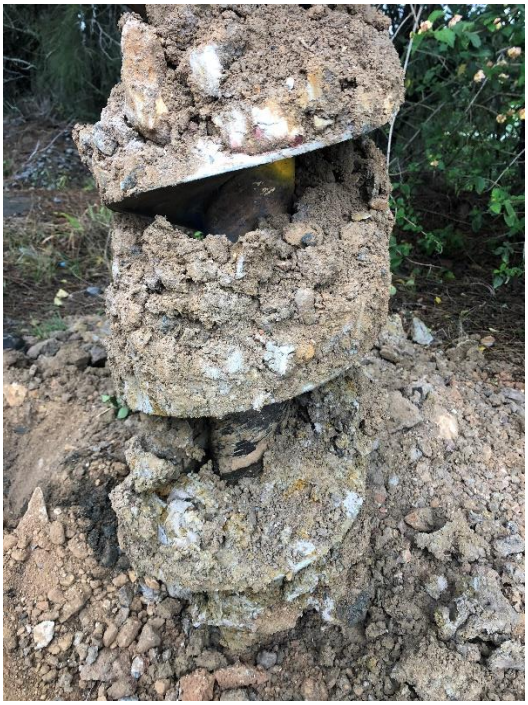


Photo 2 - Auger withdrawn from placed borehole with the sample retained



5. Analytical suite

The samples were dispatched to the NATA-accredited Eurofins MGT laboratories and analysed for:

- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Organochlorine Pesticides (OCP);
- Asbestos (Presence/Absence);
- Total Recoverable Hydrocarbons (TRH); and
- Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX).

Triplicate samples were analysed by ALS laboratories.

6. Assessment criteria

6.1. Waste Classification Criteria

The soil analytical results were compared to the Contaminant Threshold (CT) and Specific Contaminant Concentration (SCC) values in the *Waste Classification Guidelines 2014*.

The adopted waste classification criteria are presented in Table LR1 (attached).

6.2. NEPM Ecological and Health Investigation/ Screening Criteria

The soil analytical results were compared to ecological and health investigation/screening criteria detailed within the *ASC NEPM (1999, 2013)*. A comparison was made to Commercial/ Industrial land use criteria (HIL D, HSL D and Management Limits) and ecological criteria EIL D and ESL D, to provide alternative re-use options for the material at the site.

The adopted health and ecological criteria are presented in Table LR2 (attached).

7. Quality assurance / quality control

In order to assess field quality assurance / quality control (QA/QC) procedures, the following field duplicate and inter-lab duplicate samples were collected and analysed with the primary samples:

- QC1 – Duplicate of TP06 0.1;
- QC3 – Duplicate of TP06 0.8; and
- QC4 – Triplicate of TP06 0.8.

The Relative Percentage Differences (RPDs) calculated for the contaminants tested were within the control limits (acceptable RPD's) for the applicable EQL multiplier ranges.

The laboratory conducted internal quality control using laboratory duplicates, spikes and method blanks. The laboratory internal quality control showed duplicates with RPD's within laboratory acceptable limits except for heavy metals run on one sample. Qualifier codes Q15 and Q02 were recorded for the sample with the laboratory identifying sample heterogeneity as the cause of the high RPD's. The QA/QC assessment was re-run with another sample resulting in a compliant RPD's for the duplicate heavy metal analysis. Spike recoveries were recoded within control limits. The method blank results were recorded below the laboratory limit of reporting.

Based on the review of the QA/QC data, it is considered that the soil results are likely to be representative of conditions at the sampling locations at the time of sampling and are suitable for use in this waste classification assessment.

The results of the QA/QC analysis are provided in Table LR3 (attached).

8. Results of Investigation

8.1. Subsurface Conditions

The upper 1m soil profile typically consisted of a sandy gravel/sandy clay fill material in all the test pits. See attached logs for complete geological profiles.

9. Laboratory Results

9.1. Waste Classification Results

The laboratory results were compared to the General Solid and Restricted Solid Waste criteria outlined in Section 6.1.

- Concentrations of Nickel exceeded the CT1 (General Solid Waste) threshold (40mg/kg) for samples TP01 0.2, TP03 0.2, TP04 0.1 and TP05 0.1.

The other COPC were measured below the respective CT1 General Solid Waste criteria. The laboratory results are presented in Table LR1 (attached). The laboratory reports are also attached.

9.2. Re-use On Site

Laboratory results were compared against the ecological and health screening guidelines detailed within the (ASC NEPM 1999, 2013). A comparison was made against human health and management limits, ecological based investigation and screening levels for a commercial/industrial land use exposure setting (HIL D, HSL D, Management Limits, EIL D and ESL D), to assess the potential beneficial re-use of soils on the Site.

There were no measured exceedances of the adopted site assessment criteria in the samples analysed. The presence of asbestos was also assessed in all samples with no detections identified in any of the samples tested.

The laboratory results are presented in Table LR2 (attached). The laboratory reports are also attached.

10. Conclusion

Based on the results of this assessment the following conclusions are provided.

10.1.1. Site Reuse Classification

- Soils sampled along the proposed alignment to 1.0m bgs were reported below the commercial/ industrial health investigation and screening levels (HIL-D/HSL-D);
- Soils sampled along the proposed alignment to 1.0m bgs were reported below the commercial/ industrial management limits and ecological investigation and screening levels (EIL D, ESL D); and
- Soils sampled along the proposed alignment to 1.om bgs all tested negative for the presence of asbestos containing materials.

The soils sampled along the proposed alignment to 1.0m bgs are therefore considered suitable for **onsite reuse as general fill** for a commercial/industrial land use setting in accordance with the *ASC NEPM (1999, 2013)*. The assessments were undertaken in accordance with *Managing Land Contamination: Planning Guidelines (SEPP 55) - Remediation of Land.*

10.1.2. Waste Classification

Due to exceedances of the General Solid Waste (GSW) CT1 Nickel criteria of the *Waste Classification Guidelines 2014*, the soil achieved an interim classification of Restricted Solid Waste (RSW) (95% UCL of all 14 samples calculated to be 42.6mg/kg Ni).

Toxicity Characteristic Leaching Procedure (TCLP) testing was conducted on three (3) samples, TP03 0.2, TP04 0.1 and TP05 0.1, to assess the results against the TCLP1/TCLP2 criteria in the Waste Classification Guidelines. This was undertaken to investigate whether the soil Ni concentrations could be compared against the Specific Contaminant Concentration (SCC) criteria in the *Waste Classification Guidelines 2014* to reduce the initial classification of the soil's from RSW to GSW.

The TCLP Ni concentrations in the samples tested were below the TCLP1 criteria value and as such the respective soil concentrations were compared to the SCC1 Ni criteria (1050mg/kg Ni). The concentrations of each exceeding sample as well as the 95% UCL of all the samples were below the SCC1 Ni criteria value.

According to the procedure outlined in the *Waste Classification Guidelines 2014*, the following is assessed for the in-situ soils samples along the proposed road alignment:

- The material is not a Special Waste;
- The material is not a Liquid Waste;
- The material is not a Pre-Classified Waste; and
- The material does not possess hazardous characteristics.

Therefore, the in-situ soils sampled along the proposed road alignment are classified as **General Solid Waste (SCC1/TCLP1)**. This material can be disposed of at a facility licenced to accept General Solid Waste.

11. Limitations

This assessment was based on visual observations and a limited soil sampling programme. If conditions other than those described in this report are encountered during earthworks, further advice should be sought without delay. This letter should be read in conjunction with the attached sheet entitled *"Important Information about Your Coffey Environmental Report"*.

This report was prepared for Taylor Thomson Whitting (NSW) Pty Ltd with the objective of providing a site reuse assessment and waste classification of in-situ soils along a 250m long x 10m wide alignment (to a depth of 1m) for a proposed roadway connecting the proposed Wyong Hospital expansion development to Louisiana Road. The excavated soil was assessed in accordance with the NSW EPA (2014) *Waste Classification Guidelines* for the purpose of re-use and disposal options and the *National Environment Protection (Assessment of Site Contamination) Measure (NEPC 1999 amended 2013) and Managing Land Contamination: Planning Guidelines (SEPP 55) - Remediation of Land* for the purposes of site reuse. No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation.

If you have any questions regarding this report, please do not hesitate to contact Paul Wright on (02) 4016 2300.

For and on behalf of Coffey

Paul Wright
Senior Associate

Attachments:

Important Information about your Coffey Environmental Report
Figure A1
Table LR1
Table LR2
Table LR3
Laboratory Reports

Important information about your **Coffey** Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice,

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but

steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

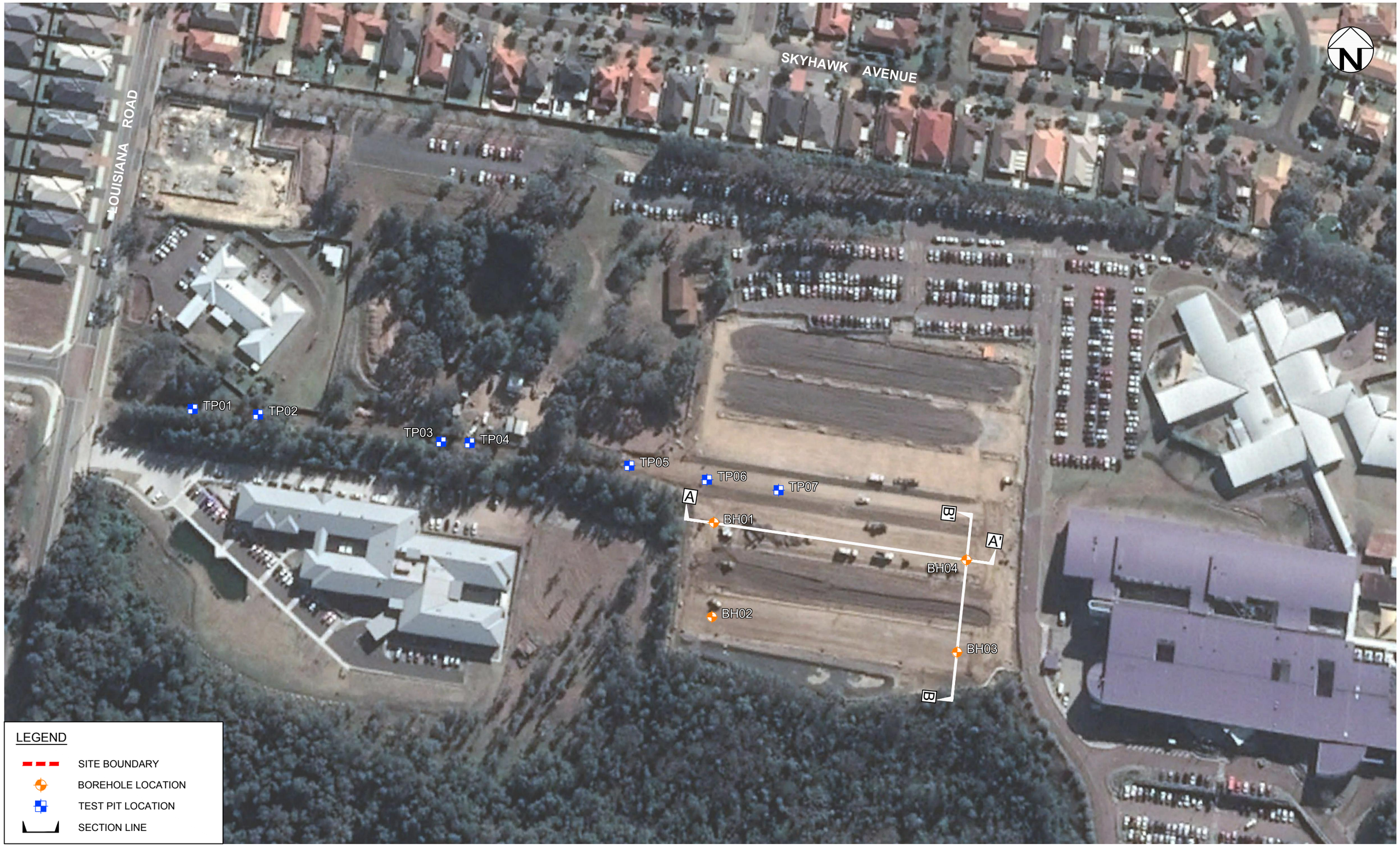
Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.



revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

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Scale (metres) 1:1500

AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 7.1.2
AERIAL IMAGE ©: 2018 CNES/Airbus

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scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: COLLIERS

project: WYONG HOSPITAL EXPANSION
PACIFIC HIGHWAY, HAMLYN TERRACE, NSW

title: INVESTIGATION LOCATION PLAN

project no: 754-NTLGE222494 | figure no: FIGURE A1 | rev: A

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								Field ID	TP01 0.2	TP01 0.8	TP02 0.2	TP02 0.6	TP03 0.2	TP03 0.9	TP04 0.1	TP04 0.9	TP05 0.1	TP05 1.0	TP06 0.1	TP06 0.8	TP07 0.1	TP07 0.9
								Sample Date	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18
				CT1 NSW 2014 General Solid Waste (1) * TCLP1	CT2 NSW 2014 Restricted Solid Waste (2) *TCLP2	SCC1 NSW 2014 General Soild Waste (3)	SCC2 NSW 2014 General Soild Waste (4)																
Method_Type	**ChemName**	**Units**	**EQL**																			
Heavy Metal	Arsenic	mg/kg	2	100	400	500	2000		2.9	4.6	3.1	6.2	3.5	5.6	2.1	7.5	2.6	4	7.5	10	6	<2
	Cadmium	mg/kg	0.4	20	80	100	400		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
	Chromium	mg/kg	5	100	400	1900	7600		16	12	12	16	18	17	12	21	15	14	16	17	9.7	5.4
	Copper	mg/kg	5						27	16	17	27	46	<5	37	18	48	7.6	20	14	13	5.6
	Lead	mg/kg	5	100	400	1500	6000		8.3	15	6.5	11	<5	11	<5	15	<5	8.5	19	18	11	<5
	Mercury	mg/kg	0.1	4	16	50	200		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Nickel	mg/kg	5	40	160	1050	4200		40	13	30	35	73	<5	57	12	80	11	9.7	8.5	11	<5
	Nickel (TCLP)	mg/L	0	2*	8*								0.03		0.02		0.02					
	Zinc	mg/kg	5						33	22	33	41	52	9	51	29	51	32	30	22	30	5.5
Inorganic	Moisture Content (dried @ 103°C)	%	1						7.2	8.3	8.7	16	11	15	13	9.8	9.6	16	7.6	9.5	15	11
OCP	4,4-DDE	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	a-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Aldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Aldrin + Dieldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	b-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Chlordane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	d-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDT	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDT+DDE+DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Dieldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan I	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan II	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan sulphate	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin aldehyde	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin ketone	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	g-BHC (Lindane)	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Heptachlor	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Heptachlor epoxide	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Hexachlorobenzene	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Methoxychlor	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toxaphene	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Vic EPA IWRG 621 OCP (Total)*	MG/KG	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Vic EPA IWRG 621 Other OCP (Total)*	MG/KG	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Organic	Naphthalene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	F2-NAPHTHALENE	mg/kg	50						<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C6 - C9	mg/kg	20	650	2600	650	2600		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10 - C40 (Sum of total)	mg/kg	100						300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C6-C10 less BTEX (F1)	mg/kg	20						<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10-C16	mg/kg	50						<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C16-C34	mg/kg	100						190	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C34-C40	mg/kg	100						110	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C6 - C10	mg/kg	20						<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
PAH	Acenaphthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5	0.8	3.2	10	23		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (lower bound) *	MG/KG	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (medium bound) *	MG/KG	0.5						0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Benzo(a)pyrene TEQ (upper bound) *	MG/KG	0.5						1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	Benzo(g,h,i)perylene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5
	Fluorene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5
	Pyrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5
	Total PAHs	mg/kg	0.5	200	800	200	800		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.1	<0.5
TPH	C10 - C14	mg/kg	20						<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C15 - C28	mg/kg	50						<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C29 - C36	mg/kg	50						190	<50	79	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C10 - C36 (Sum of total)	mg/kg	50	10000	40000	10,000	4000		190	<50	79	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Volatile	Benzene	mg/kg	0.1	10	40	18	72		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1	600	2400	1080	4320		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg	0.1	288	1152	518	2073		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene (m & p)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Xylene (o)	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene Total	mg/kg	0.3	1000	4000	1800	7200		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3

Result	Exceeds NSW 2014 General Solid Waste Criteria (No TCLP)
Result	Exceeds NSW 2014 Restricted Solid Waste Criteria (No TCLP)

Notes:

[1] Contamination Threshold Value (CT1) for General Solid Waste
[2] Contamination Threshold Value (CT2) for Restricted Solid Waste
[3] Contamination Threshold Value (SCC1) for General Solid Waste
[4] Contamination Threshold Value (SCC2) for General Solid Waste

Table LR2
Human Investigation Levels (HILs)
Wyong Hospital Expansion
754-NTLGE222494-AA

				Field_ID	TP01 0.2	TP01 0.8	TP02 0.2	TP02 0.6	TP03 0.2	TP03 0.9	TP04 0.1	TP04 0.9	TP05 0.1	TP05 1.0	TP06 0.1	TP06 0.8	TP07 0.1	TP07 0.9
				Sampled_Date-Time	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18	05-Oct-18
Method_Type	ChemName	Units	EQL	HIL-D Commercial/industrial (1)														
Heavy Metal	Arsenic	mg/kg	2	3000	2.9	4.6	3.1	6.2	3.5	5.6	2.1	7.5	2.6	4	7.5	10	6	<2
	Cadmium	mg/kg	0.4	900	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
	Chromium	mg/kg	5		16	12	12	16	18	17	12	21	15	14	16	17	9.7	5.4
	Copper	mg/kg	5	240000	27	16	17	27	46	<5	37	18	48	7.6	20	14	13	5.6
	Lead	mg/kg	5	1500	8.3	15	6.5	11	<5	11	<5	15	<5	8.5	19	18	11	<5
	Mercury	mg/kg	0.1	730	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Nickel	mg/kg	5	6000	40	13	30	35	73	<5	57	12	80	11	9.7	8.5	11	<5
	Zinc	mg/kg	5	400000	33	22	33	41	52	9	51	29	51	32	30	22	30	5.5
Inorganic	Moisture Content (dried @ 103°C)	%	1		7.2	8.3	8.7	16	11	15	13	9.8	9.6	16	7.6	9.5	15	11
OCP	4,4-DDE	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	a-BHC	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Aldrin	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Aldrin + Dieldrin	mg/kg	0.05	45	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	b-BHC	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Chlordane	mg/kg	0.1	530	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	d-BHC	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDD	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDT	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDT+DDE+DDD	mg/kg	0.05	3600	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Dieldrin	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan I	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan II	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan sulphate	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin	mg/kg	0.05	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin aldehyde	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin ketone	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	g-BHC (Lindane)	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Heptachlor	mg/kg	0.05	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Heptachlor epoxide	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Hexachlorobenzene	mg/kg	0.05	80	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Methoxychlor	mg/kg	0.05	2500	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toxaphene	mg/kg	1	160	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Vic EPA IWRG 621 OCP (Total)*	MG/KG	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Vic EPA IWRG 621 Other OCP (Total)*	MG/KG	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Organic	Naphthalene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	F2-NAPHTHALENE	mg/kg	50		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C6 - C9	mg/kg	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10 - C40 (Sum of total)	mg/kg	100		300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C6-C10 less BTEX (F1)	mg/kg	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10-C16	mg/kg	50		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C16-C34	mg/kg	100		190	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C34-C40	mg/kg	100		110	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C6 - C10	mg/kg	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
PAH	Acenaphthene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)anthracene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (lower bound) *	MG/KG	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (medium bound)	MG/KG	0.5		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Benzo(a)pyrene TEQ (upper bound) *	MG/KG	0.5		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	Benzo(g,h,i)perylene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5
	Fluorene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5
	Pyrene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5
	Total PAHs	mg/kg	0.5	4000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.1	<0.5
TPH	C10 - C14	mg/kg	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C15 - C28	mg/kg	50		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C29 - C36	mg/kg	50		190	<50	79	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C10 - C36 (Sum of total)	mg/kg	50		190	<50	79	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Volatile	Benzene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene (m & p)	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Xylene (o)	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene Total	mg/kg	0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Asbestos	Asbesos Presence				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Result — Exceeds Human Investigation Level (HIL-D)
ND — Non-Detect

Notes:

[1] NEPM (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) -Table 1A(1):Human Investigation Levels Commercial Industrial

Table LR3
QAQC Table
Wyong Hospital Expansion
754-NTLGE222494-AA

Field Duplicates (SOIL)
Filter: SDG in('09 Oct 2018')

SDG	9-Oct-18	9-Oct-18	RPD	9-Oct-18	9-Oct-18	RPD	9-Oct-18	Interlab_D	RPD
Field ID	TP06 0.1	QC1		TP06 0.8	QC2		TP06 0.8	QC3	
Sampled Date/Time	10/5/2018	10/5/2018		10/5/2018	10/5/2018		10/5/2018	10/5/2018	
Method_Type	**ChemName**	**Units**	**EQL**						
Organic	C6-C10 less BTEX (F1)	mg/kg	20 (Primary): 10 (Inte	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<10.0	0
Volatile	Benzene	mg/kg	0.1 (Primary): 0.2 (In	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.2	0
	Ethylbenzene	mg/kg	0.1 (Primary): 0.5 (In	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.5	0
	Toluene	mg/kg	0.1 (Primary): 0.5 (In	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.5	0
	Xylene (m & p)	mg/kg	0.2 (Primary): 0.5 (In	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.5	0
	Xylene (o)	mg/kg	0.1 (Primary): 0.5 (In	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.5	0
	Xylene Total	mg/kg	0.3 (Primary): 0.5 (In	<0.3	<0.3	0	<0.3	<0.3	0	<0.3	<0.5	0
Inorganic	Moisture Content (dried @	%	1	7.6	8.0	5	**9.5**	**13.0**	**31**	9.5		
Heavy Metal	Arsenic	mg/kg	2 (Primary): 5 (Interla	7.5	7.1	5	10.0	15.0	40	10.0	6.0	50
	Cadmium	mg/kg	0.4 (Primary): 1 (Inte	<0.4	<0.4	0	<0.4	<0.4	0	<0.4	<1.0	0
	Chromium	mg/kg	5 (Primary): 2 (Interla	16.0	15.0	6	17.0	17.0	0	17.0	11.0	43
	Copper	mg/kg	5	20.0	17.0	16	14.0	12.0	15	14.0	12.0	15
	Lead	mg/kg	5	19.0	17.0	11	18.0	14.0	25	18.0	14.0	25
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	5 (Primary): 2 (Interla	9.7	9.1	6	8.5	7.4	14	8.5	6.0	34
	Zinc	mg/kg	5	30.0	24.0	22	22.0	22.0	0	22.0	21.0	5
OCP	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	a-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	b-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Chlordane	mg/kg	0.1 (Primary): 0.05 (I	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.05	0
	d-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	DDT	mg/kg	0.05 (Primary): 0.2 (I	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.2	0
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Dieldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan I	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan II	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin ketone	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Methoxychlor	mg/kg	0.05 (Primary): 0.2 (I	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.2	0
	Toxaphene	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	Vic EPA IWRG 621 OCP (T	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
	Vic EPA IWRG 621 Other (	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
Organic	Naphthalene	mg/kg	0.5 (Primary): 1 (Inte	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (lowe	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (med	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
	Benzo(a)pyrene TEQ (uppe	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo[b+j]fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Inte	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Total PAHs	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Organic	F2-NAPHTHALENE	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	C6 - C9	mg/kg	20 (Primary): 10 (Inte	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<10.0	0
	C10 - C40 (Sum of total)	mg/kg	100 (Primary): 50 (In	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<50.0	0
	C10-C16	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	C16-C34	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	C34-C40	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	C6 - C10	mg/kg	20 (Primary): 10 (Inte	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<10.0	0
TPH	C10 - C14	mg/kg	20 (Primary): 50 (Inte	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<50.0	0
	C15 - C28	mg/kg	50 (Primary): 100 (In	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<100.0	0
	C29 - C36	mg/kg	50 (Primary): 100 (In	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<100.0	0
	C10 - C36 (Sum of total)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Reference No. _____

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey
A TETRA TECH COMPANY

Consigning Office: WAKEFIELD

Report Results to: merrick jones Mobile: 01222 88221 Email: merrick.jones @coffey.com

Invoices to: Phone: Email: @coffey.com

Project No: 754-NTLG222494 Task No: 110

Project Name: WYONG DEVELOPMENT Laboratory:

Sampler's Name: MERRICK JONES Project Manager: REHAN BUKHARI

Special Instructions: PLEASE TRANSFER QC3 to ALS

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	BG												NOTES
	TP01 0.2	5/10/18	AM	S	J	5 DAY.	✓												
	TP01 0.8						✓												
	TP02 0.2						✓												
	TP02 0.6						✓												
	TP03 0.2						✓												
	TP03 0.9						✓												
	TP04 0.1						✓												
	TP04 0.9						✓												
	TP05 0.1						✓												
	TP05 1.0						✓												
	TP06 0.1						✓												
	TP06 0.8						✓												
	TP07 0.1						✓												
	TP07 0.9						✓												
	QC1						✓												
	QC2						✓												
	QC3 (ALS)																		PLEASE TRANSFER QC3 to ALS (BG only)

Analysis Request Section

RELINQUISHED BY

Name: MERRICK JONES Date: 8/10/18 →

Coffey Environments Time:

Name: Date: →

Company: Time:

RECEIVED BY

Name: SUE Date: 8/10/18

Company: Time: 2-30PM

Name: Tony W. Date: 9/10/18.

Company: Eurofins Time: 8:30 AM

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☒

All Documentation is in Proper Order ☒

Samples Received Properly Chilled ☒

Lab. Ref/Batch No. 621673

***Container Type & Preservation Codes:** **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

eurofins | mgt

Melbourne
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Oakleigh Vic 3166
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Site # 1254 & 14271

Sydney
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments P/L N'castle**
Contact name:	Merrick Jones
Project name:	WYONG DEVELOPMENT
Project ID:	754-NTLGE222494
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 9, 2018 8:30 AM
Eurofins | mgt reference:	**621673**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 10.7 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Merrick Jones - Merrick.Jones@coffey.com.

eurofins | mgt

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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NATA # 1261 Site # 20794

Perth
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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: WYONG DEVELOPMENT
Project ID: 754-NTLGE222494

Order No.:
Report #: 621673
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Oct 9, 2018 8:30 AM
Due: Oct 16, 2018
Priority: 5 Day
Contact Name: Merrick Jones

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TP01 0.2	Oct 05, 2018		Soil	M18-Oc10391	X	X
2	TP01 0.8	Oct 05, 2018		Soil	M18-Oc10392	X	X
3	TP02 0.2	Oct 05, 2018		Soil	M18-Oc10393	X	X
4	TP02 0.6	Oct 05, 2018		Soil	M18-Oc10394	X	X
5	TP03 0.2	Oct 05, 2018		Soil	M18-Oc10395	X	X
6	TP03 0.9	Oct 05, 2018		Soil	M18-Oc10396	X	X
7	TP04 0.1	Oct 05, 2018		Soil	M18-Oc10397	X	X
8	TP04 0.9	Oct 05, 2018		Soil	M18-Oc10398	X	X
9	TP05 0.1	Oct 05, 2018		Soil	M18-Oc10399	X	X

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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Project Name: WYONG DEVELOPMENT
Project ID: 754-NTLGE222494

Order No.:
Report #: 621673
Phone: 02 4016 2300
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Received: Oct 9, 2018 8:30 AM
Due: Oct 16, 2018
Priority: 5 Day
Contact Name: Merrick Jones

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
10	TP05 1.0	Oct 05, 2018		Soil	M18-Oc10400	X	X
11	TP06 0.1	Oct 05, 2018		Soil	M18-Oc10401	X	X
12	TP06 0.8	Oct 05, 2018		Soil	M18-Oc10402	X	X
13	TP07 0.1	Oct 05, 2018		Soil	M18-Oc10403	X	X
14	TP07 0.9	Oct 05, 2018		Soil	M18-Oc10404	X	X
15	QC1	Oct 05, 2018		Soil	M18-Oc10405	X	X
16	QC2	Oct 05, 2018		Soil	M18-Oc10406	X	X
Test Counts						16	16

Certificate of Analysis

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Merrick Jones**

Report **621673-S**
Project name WYONG DEVELOPMENT
Project ID 754-NTLGE222494
Received Date Oct 09, 2018

Client Sample ID			**TP01 0.2**	**TP01 0.8**	**TP02 0.2**	**TP02 0.6**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Oc10391**	**M18-Oc10392**	**M18-Oc10393**	**M18-Oc10394**
Date Sampled			**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	190	< 50	79	< 50
TRH C10-36 (Total)	50	mg/kg	190	< 50	79	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	103	89	87	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	190	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	110	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	300	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TP01 0.2	TP01 0.8	TP02 0.2	TP02 0.6
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Oc10391**	**M18-Oc10392**	**M18-Oc10393**	**M18-Oc10394**
Date Sampled			**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	91	95	86	96
p-Terphenyl-d14 (surr.)	1	%	83	93	74	100
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	105	115	108	116
Tetrachloro-m-xylene (surr.)	1	%	102	113	106	116
Heavy Metals						
Arsenic	2	mg/kg	2.9	4.6	3.1	6.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	16	12	12	16
Copper	5	mg/kg	27	16	17	27
Lead	5	mg/kg	8.3	15	6.5	11
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	40	13	30	35
Zinc	5	mg/kg	33	22	33	41
% Moisture	1	%	7.2	8.3	8.7	16

Client Sample ID			TP03 0.2	TP03 0.9	TP04 0.1	TP04 0.9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-Oc10395	M18-Oc10396	M18-Oc10397	M18-Oc10398
Date Sampled			Oct 05, 2018	Oct 05, 2018	Oct 05, 2018	Oct 05, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91	85	82	80
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	91	92	93	90
p-Terphenyl-d14 (surr.)	1	%	87	94	93	78

Client Sample ID			TP03 0.2	TP03 0.9	TP04 0.1	TP04 0.9
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Oc10395**	**M18-Oc10396**	**M18-Oc10397**	**M18-Oc10398**
Date Sampled			**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.9
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.23
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.23
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	1.13
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.9
Dibutylchlorendate (surr.)	1	%	107	102	107	112
Tetrachloro-m-xylene (surr.)	1	%	106	102	107	109
Heavy Metals						
Arsenic	2	mg/kg	3.5	5.6	2.1	7.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	18	17	12	21
Copper	5	mg/kg	46	< 5	37	18
Lead	5	mg/kg	< 5	11	< 5	15
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	73	< 5	57	12
Zinc	5	mg/kg	52	9.0	51	29
% Moisture	1	%	11	15	13	9.8

Client Sample ID			TP05 0.1	TP05 1.0	TP06 0.1	TP06 0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-Oc10399	M18-Oc10400	M18-Oc10401	M18-Oc10402
Date Sampled			Oct 05, 2018	Oct 05, 2018	Oct 05, 2018	Oct 05, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	68	80	102	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	88	65	81	90
p-Terphenyl-d14 (surr.)	1	%	90	76	98	103

Client Sample ID			TP05 0.1	TP05 1.0	TP06 0.1	TP06 0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-Oc10399	M18-Oc10400	M18-Oc10401	M18-Oc10402
Date Sampled			Oct 05, 2018	Oct 05, 2018	Oct 05, 2018	Oct 05, 2018
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	104	114	108	111
Tetrachloro-m-xylene (surr.)	1	%	106	114	110	112
Heavy Metals						
Arsenic	2	mg/kg	2.6	4.0	7.5	10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	14	16	17
Copper	5	mg/kg	48	7.6	20	14
Lead	5	mg/kg	< 5	8.5	19	18
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	80	11	9.7	8.5
Zinc	5	mg/kg	51	32	30	22
% Moisture	1	%	9.6	16	7.6	9.5

Client Sample ID			TP07 0.1	TP07 0.9	QC1	QC2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Oc10403**	**M18-Oc10404**	**M18-Oc10405**	**M18-Oc10406**
Date Sampled			**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	93	72	70	72
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.6	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	0.9	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	1.6	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	4.1	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	72	81	91	82
p-Terphenyl-d14 (surr.)	1	%	77	88	110	95

Client Sample ID			TP07 0.1	TP07 0.9	QC1	QC2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Oc10403**	**M18-Oc10404**	**M18-Oc10405**	**M18-Oc10406**
Date Sampled			**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	114	98	97	111
Tetrachloro-m-xylene (surr.)	1	%	104	103	103	111
Heavy Metals						
Arsenic	2	mg/kg	6.0	< 2	7.1	15
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	9.7	5.4	15	17
Copper	5	mg/kg	13	5.6	17	12
Lead	5	mg/kg	11	< 5	17	14
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	11	< 5	9.1	7.4
Zinc	5	mg/kg	30	5.5	24	22
% Moisture	1	%	15	11	8.0	13

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B9			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 10, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Oct 10, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 10, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 10, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 10, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Melbourne	Oct 10, 2018	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Metals M8	Melbourne	Oct 10, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Oct 09, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 18217

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NATA # 1261 Site # 20794

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NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: WYONG DEVELOPMENT
Project ID: 754-NTLGE222494

Order No.:
Report #: 621673
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Oct 9, 2018 8:30 AM
Due: Oct 16, 2018
Priority: 5 Day
Contact Name: Merrick Jones

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TP01 0.2	Oct 05, 2018		Soil	M18-Oc10391	X	X
2	TP01 0.8	Oct 05, 2018		Soil	M18-Oc10392	X	X
3	TP02 0.2	Oct 05, 2018		Soil	M18-Oc10393	X	X
4	TP02 0.6	Oct 05, 2018		Soil	M18-Oc10394	X	X
5	TP03 0.2	Oct 05, 2018		Soil	M18-Oc10395	X	X
6	TP03 0.9	Oct 05, 2018		Soil	M18-Oc10396	X	X
7	TP04 0.1	Oct 05, 2018		Soil	M18-Oc10397	X	X
8	TP04 0.9	Oct 05, 2018		Soil	M18-Oc10398	X	X
9	TP05 0.1	Oct 05, 2018		Soil	M18-Oc10399	X	X

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NATA # 1261 Site # 20794

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NATA # 1261
Site # 23736

Company Name:	Coffey Environments P/L N'castle	**Order No.:**	**Received:** Oct 9, 2018 8:30 AM
Address:	Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304	**Report #:** 621673 **Phone:** 02 4016 2300 **Fax:** 02 4016 2380	**Due:** Oct 16, 2018 **Priority:** 5 Day **Contact Name:** Merrick Jones
Project Name:	WYONG DEVELOPMENT		
Project ID:	754-NTLGE222494		

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
10	TP05 1.0	Oct 05, 2018		Soil	M18-Oc10400	X	X
11	TP06 0.1	Oct 05, 2018		Soil	M18-Oc10401	X	X
12	TP06 0.8	Oct 05, 2018		Soil	M18-Oc10402	X	X
13	TP07 0.1	Oct 05, 2018		Soil	M18-Oc10403	X	X
14	TP07 0.9	Oct 05, 2018		Soil	M18-Oc10404	X	X
15	QC1	Oct 05, 2018		Soil	M18-Oc10405	X	X
16	QC2	Oct 05, 2018		Soil	M18-Oc10406	X	X
Test Counts						16	16

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	88			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	119			70-130	Pass	
Toluene	%	124			70-130	Pass	
Ethylbenzene	%	106			70-130	Pass	
m&p-Xylenes	%	106			70-130	Pass	
Xylenes - Total	%	106			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	78			70-130	Pass	
TRH C6-C10	%	94			70-130	Pass	
TRH >C10-C16	%	76			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	109			70-130	Pass	
Acenaphthylene	%	115			70-130	Pass	
Anthracene	%	119			70-130	Pass	
Benz(a)anthracene	%	100			70-130	Pass	
Benzo(a)pyrene	%	93			70-130	Pass	
Benzo(b&j)fluoranthene	%	102			70-130	Pass	
Benzo(g.h.i)perylene	%	93			70-130	Pass	
Benzo(k)fluoranthene	%	121			70-130	Pass	
Chrysene	%	109			70-130	Pass	
Dibenz(a.h)anthracene	%	74			70-130	Pass	
Fluoranthene	%	107			70-130	Pass	
Fluorene	%	113			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	81			70-130	Pass	
Naphthalene	%	109			70-130	Pass	
Phenanthrene	%	113			70-130	Pass	
Pyrene	%	109			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	110			70-130	Pass	
4.4'-DDE	%	123			70-130	Pass	
4.4'-DDT	%	105			70-130	Pass	
a-BHC	%	112			70-130	Pass	
Aldrin	%	108			70-130	Pass	
b-BHC	%	98			70-130	Pass	
d-BHC	%	96			70-130	Pass	
Dieldrin	%	124			70-130	Pass	
Endosulfan I	%	123			70-130	Pass	
Endosulfan II	%	109			70-130	Pass	
Endosulfan sulphate	%	113			70-130	Pass	
Endrin	%	126			70-130	Pass	
Endrin aldehyde	%	121			70-130	Pass	
Endrin ketone	%	122			70-130	Pass	
g-BHC (Lindane)	%	115			70-130	Pass	
Heptachlor	%	119			70-130	Pass	
Heptachlor epoxide	%	117			70-130	Pass	
Hexachlorobenzene	%	107			70-130	Pass	
Methoxychlor	%	106			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	109			80-120	Pass	
Cadmium	%	107			80-120	Pass	
Chromium	%	105			80-120	Pass	
Copper	%	103			80-120	Pass	
Lead	%	108			80-120	Pass	
Mercury	%	102			75-125	Pass	
Nickel	%	105			80-120	Pass	
Zinc	%	106			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M18-Oc10026	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-Oc10026	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Oc09829	NCP	%	111			70-130	Pass	
Acenaphthylene	M18-Oc09829	NCP	%	117			70-130	Pass	
Anthracene	M18-Oc09829	NCP	%	120			70-130	Pass	
Benz(a)anthracene	M18-Oc09829	NCP	%	104			70-130	Pass	
Benzo(a)pyrene	M18-Oc09829	NCP	%	93			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Oc09829	NCP	%	98			70-130	Pass	
Benzo(g.h.i)perylene	M18-Oc09829	NCP	%	89			70-130	Pass	
Benzo(k)fluoranthene	M18-Oc09829	NCP	%	119			70-130	Pass	
Chrysene	M18-Oc09829	NCP	%	113			70-130	Pass	
Dibenz(a.h)anthracene	M18-Oc09829	NCP	%	88			70-130	Pass	
Fluoranthene	M18-Oc09829	NCP	%	109			70-130	Pass	
Fluorene	M18-Oc09829	NCP	%	117			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Oc09829	NCP	%	77			70-130	Pass	
Naphthalene	M18-Oc09829	NCP	%	108			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	M18-Oc09829	NCP	%	112			70-130	Pass	
Pyrene	M18-Oc09829	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Oc10393	CP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Oc10393	CP	%	101			70-130	Pass	
Toluene	M18-Oc10393	CP	%	110			70-130	Pass	
Ethylbenzene	M18-Oc10393	CP	%	90			70-130	Pass	
m&p-Xylenes	M18-Oc10393	CP	%	94			70-130	Pass	
o-Xylene	M18-Oc10393	CP	%	97			70-130	Pass	
Xylenes - Total	M18-Oc10393	CP	%	95			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Oc10393	CP	%	81			70-130	Pass	
TRH C6-C10	M18-Oc10393	CP	%	99			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Oc10396	CP	%	111			75-125	Pass	
Cadmium	M18-Oc10396	CP	%	110			75-125	Pass	
Chromium	M18-Oc10396	CP	%	113			75-125	Pass	
Copper	M18-Oc10396	CP	%	105			75-125	Pass	
Lead	M18-Oc10396	CP	%	113			75-125	Pass	
Mercury	M18-Oc10396	CP	%	104			70-130	Pass	
Nickel	M18-Oc10396	CP	%	104			75-125	Pass	
Zinc	M18-Oc10396	CP	%	105			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	M18-Oc10399	CP	%	116			70-130	Pass	
4.4'-DDE	M18-Oc10399	CP	%	114			70-130	Pass	
4.4'-DDT	M18-Oc10399	CP	%	80			70-130	Pass	
a-BHC	M18-Oc10399	CP	%	98			70-130	Pass	
Aldrin	M18-Oc10399	CP	%	113			70-130	Pass	
b-BHC	M18-Oc10399	CP	%	94			70-130	Pass	
d-BHC	M18-Oc10399	CP	%	90			70-130	Pass	
Dieldrin	M18-Oc10399	CP	%	104			70-130	Pass	
Endosulfan I	M18-Oc10399	CP	%	103			70-130	Pass	
Endosulfan II	M18-Oc10399	CP	%	97			70-130	Pass	
Endosulfan sulphate	M18-Oc10399	CP	%	98			70-130	Pass	
Endrin	M18-Oc10399	CP	%	108			70-130	Pass	
Endrin aldehyde	M18-Oc10399	CP	%	93			70-130	Pass	
Endrin ketone	M18-Oc10399	CP	%	101			70-130	Pass	
g-BHC (Lindane)	M18-Oc10399	CP	%	102			70-130	Pass	
Heptachlor	M18-Oc10399	CP	%	100			70-130	Pass	
Heptachlor epoxide	M18-Oc10399	CP	%	102			70-130	Pass	
Hexachlorobenzene	M18-Oc10399	CP	%	97			70-130	Pass	
Methoxychlor	M18-Oc10399	CP	%	84			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Oc10403	CP	%	98			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Oc10403	CP	%	97			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	M18-Oc10403	CP	%	95			70-130	Pass	
Ethylbenzene	M18-Oc10403	CP	%	90			70-130	Pass	
m&p-Xylenes	M18-Oc10403	CP	%	95			70-130	Pass	
o-Xylene	M18-Oc10403	CP	%	102			70-130	Pass	
Xylenes - Total	M18-Oc10403	CP	%	97			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Oc10403	CP	%	78			70-130	Pass	
TRH C6-C10	M18-Oc10403	CP	%	97			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Oc10392	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-Oc10392	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-Oc10392	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M18-Oc10392	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Oc10392	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Oc10392	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Oc10392	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Oc10392	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Oc10392	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Oc10392	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Oc10392	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-Oc10392	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-Oc10392	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M18-Oc10392	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M18-Oc10392	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Oc10395	CP	mg/kg	3.5	< 2	73	30%	Fail	Q15
Cadmium	M18-Oc10395	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-Oc10395	CP	mg/kg	18	11	50	30%	Fail	Q15
Copper	M18-Oc10395	CP	mg/kg	46	28	47	30%	Fail	Q15
Lead	M18-Oc10395	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	M18-Oc10395	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M18-Oc10395	CP	mg/kg	73	45	46	30%	Fail	Q15
Zinc	M18-Oc10395	CP	mg/kg	52	680	170	30%	Fail	Q02
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Oc10396	CP	mg/kg	5.6	5.6	<1	30%	Pass	
Cadmium	M18-Oc10396	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-Oc10396	CP	mg/kg	17	18	<1	30%	Pass	
Copper	M18-Oc10396	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M18-Oc10396	CP	mg/kg	11	11	3.0	30%	Pass	
Mercury	M18-Oc10396	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M18-Oc10396	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	M18-Oc10396	CP	mg/kg	9.0	8.9	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-Oc10397	CP	%	13	13	4.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M18-Oc10398	CP	mg/kg	0.9	0.7	22	30%	Pass	
4.4'-DDD	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M18-Oc10398	CP	mg/kg	0.23	0.22	7.0	30%	Pass	
Endosulfan I	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M18-Oc10398	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M18-Oc10398	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Oc10402	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-Oc10402	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-Oc10402	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M18-Oc10402	CP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Oc10402	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Oc10402	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Oc10402	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Oc10402	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Oc10402	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Oc10402	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Oc10402	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-Oc10402	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-Oc10402	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M18-Oc10402	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M18-Oc10402	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Andrew Black	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Enviro Sample Vic

From: Andrew Black
Sent: Tuesday, 30 October 2018 2:34 PM
To: Enviro Sample Vic
Subject: 2 DAY TAT ADDITIONAL LEACHATES: FW: Test Request - TCLP Leach (Nickel)
Attachments: image001.jpg; image002.jpg; image003.jpg; image004.jpg; Eurofins | mgt Test Results - Report 621673 : Site WYONG DEVELOPMENT (754-NTLGE222494)

Importance: High

Urgent additional leachates thanks team

30/10/18 2:34pm
L.F G25072

Andrew Black
Phone: +61 410 220 750
Email: AndrewBlack@eurofins.com

From: Wright, Paul [mailto:Paul.Wright@coffey.com]
Sent: Tuesday, 30 October 2018 2:29 PM
To: Andrew Black
Cc: Bukhari, Rehan; Jones, Merrick
Subject: Test Request - TCLP Leach (Nickel)

EXTERNAL EMAIL*

Hi Andrew,
Could you please run TCLP leach (2 day TAT) for Ni only on the following samples:
TP03 0.2
TP04 0.1
TP05 0.1

D-S 05/10

GC10395
GC10397
GC10399

G11388

Cheers

Paul Wright
Senior Associate
Environments Lead, Newcastle

19 Warabrook Boulevard
Warabrook, NSW
2304

t: +61 2 4016 2300
f: +61 2 4016 2380
m: +61 4 1766 7296

coffey
A TETRA TECH COMPANY

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments P/L N'castle**
Contact name:	Paul Wright
Project name:	WYONG DEVELOPMENT
Project ID:	754-NTLGE222494
COC number:	Not provided
Turn around time:	2 Day
Date/Time received:	Oct 30, 2018 2:34 PM
Eurofins | mgt reference:	**625072**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 10.7 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Paul Wright - paul.wright@coffey.com.

eurofins | mgt

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: WYONG DEVELOPMENT
Project ID: 754-NTLGE222494

Order No.:
Report #: 625072
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Oct 30, 2018 2:34 PM
Due: Nov 1, 2018
Priority: 2 Day
Contact Name: Paul Wright

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Nickel	USA Leaching Procedure
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TP03 0.2	Oct 05, 2018		US Leachate	M18-Oc36727	X	X
2	TP04 0.1	Oct 05, 2018		US Leachate	M18-Oc36728	X	X
3	TP05 0.1	Oct 05, 2018		US Leachate	M18-Oc36729	X	X
Test Counts						3	3

eurofins | mgt

30 years Testing For Life 1987–2017
Celebrating 30 years Testing and Protecting Human Health

Certificate of Analysis

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Paul Wright**

Report **625072-L**
Project name WYONG DEVELOPMENT
Project ID 754-NTLGE222494
Received Date Oct 30, 2018

Client Sample ID			**TP03 0.2**	**TP04 0.1**	**TP05 0.1**
Sample Matrix			**US Leachate**	**US Leachate**	**US Leachate**
Eurofins | mgt Sample No.			**M18-Oc36727**	**M18-Oc36728**	**M18-Oc36729**
Date Sampled			**Oct 05, 2018**	**Oct 05, 2018**	**Oct 05, 2018**
Test/Reference	LOR	Unit			
Heavy Metals					
Nickel	0.01	mg/L	0.03	0.02	0.02
USA Leaching Procedure					
Leachate Fluid[C01]		comment	1.0	1.0	1.0
pH (initial)	0.1	pH Units	8.1	8.3	8.2
pH (Leachate fluid)	0.1	pH Units	5.0	5.0	5.0
pH (off)	0.1	pH Units	5.1	5.2	5.1
pH (USA HCl addition)	0.1	pH Units	1.4	1.5	1.4

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Heavy Metals	Melbourne	Oct 30, 2018	180 Day

- Method:

eurofins | mgt

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
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Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

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NATA # 1261 Site # 20794

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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: WYONG DEVELOPMENT
Project ID: 754-NTLGE222494

Order No.:
Report #: 625072
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Oct 30, 2018 2:34 PM
Due: Nov 1, 2018
Priority: 2 Day
Contact Name: Paul Wright

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Nickel	USA Leaching Procedure
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TP03 0.2	Oct 05, 2018		US Leachate	M18-Oc36727	X	X
2	TP04 0.1	Oct 05, 2018		US Leachate	M18-Oc36728	X	X
3	TP05 0.1	Oct 05, 2018		US Leachate	M18-Oc36729	X	X
Test Counts						3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Heavy Metals									
Nickel			mg/L	< 0.01			0.01	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Nickel	M18-Oc36228	NCP	%	119			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	M18-Oc36228	NCP	mg/L	0.08	0.08	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised By

Andrew Black	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Enviro Sample Vic

From: Andrew Black
Sent: Monday, 5 November 2018 12:30 PM
To: Enviro Sample Vic
Subject: 2 DAY TAT ADDITIONAL: FW: Report: 621673
Attachments: image001.jpg; image002.jpg; image003.jpg; image004.jpg

Importance: High

Hi Team

Please see additional request for asbestos to be run on all samples in this job. Please send all samples to Sydney.

Andrew Black
Phone: +61 410 220 750
Email: AndrewBlack@eurofins.com

From: Wright, Paul [mailto:Paul.Wright@coffey.com]
Sent: Monday, 5 November 2018 12:28 PM
To: Andrew Black
Subject: Report: 621673

D-S 05/10

EXTERNAL EMAIL*

Hey Andrew,
Could you run these samples for Asbestos Presence/Absence please? 2 day TAT.

Cheers

OC10391 ↓ OC10406 } G1387-G1388

Paul Wright
Senior Associate
Environments Lead, Newcastle

19 Warabrook Boulevard
Warabrook, NSW
2304

t: +61 2 4016 2300
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m: +61 4 1766 7296

coffey
A TETRA TECH COMPANY

Jaipa Puti
5/11/18 12:28pm
626046

eurofins | mgt

Melbourne
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Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments P/L N'castle**
Contact name:	Paul Wright
Project name:	WYONG DEVELOPMENT
Project ID:	754-NTLGE222494
COC number:	Not provided
Turn around time:	2 Day
Date/Time received:	Nov 5, 2018 12:28 PM
Eurofins | mgt reference:	**626046**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Paul Wright - paul.wright@coffey.com.

eurofins | mgt

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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: WYONG DEVELOPMENT
Project ID: 754-NTLGE222494

Order No.:
Report #: 626046
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Nov 5, 2018 12:28 PM
Due: Nov 8, 2018
Priority: 2 Day
Contact Name: Paul Wright

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	TP01 0.2	Oct 05, 2018		Soil	M18-No05102	X
2	TP01 0.8	Oct 05, 2018		Soil	M18-No05103	X
3	TP02 0.2	Oct 05, 2018		Soil	M18-No05104	X
4	TP02 0.6	Oct 05, 2018		Soil	M18-No05105	X
5	TP03 0.2	Oct 05, 2018		Soil	M18-No05106	X
6	TP03 0.9	Oct 05, 2018		Soil	M18-No05107	X
7	TP04 0.1	Oct 05, 2018		Soil	M18-No05108	X
8	TP04 0.9	Oct 05, 2018		Soil	M18-No05109	X
9	TP05 0.1	Oct 05, 2018		Soil	M18-No05110	X

eurofins | mgt

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: WYONG DEVELOPMENT
Project ID: 754-NTLGE222494

Order No.:
Report #: 626046
Phone: 02 4016 2300
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Received: Nov 5, 2018 12:28 PM
Due: Nov 8, 2018
Priority: 2 Day
Contact Name: Paul Wright

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
10	TP05 1.0	Oct 05, 2018		Soil	M18-No05111	X
11	TP06 0.1	Oct 05, 2018		Soil	M18-No05112	X
12	TP06 0.8	Oct 05, 2018		Soil	M18-No05113	X
13	TP07 0.1	Oct 05, 2018		Soil	M18-No05114	X
14	TP07 0.9	Oct 05, 2018		Soil	M18-No05115	X
15	QC1	Oct 05, 2018		Soil	M18-No05116	X
16	QC2	Oct 05, 2018		Soil	M18-No05117	X
Test Counts						16

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Attention:	Paul Wright
Report	626046-AID
Project Name	WYONG DEVELOPMENT
Project ID	754-NTLGE222494
Received Date	Nov 05, 2018
Date Reported	Nov 08, 2018

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS4964 method for inhomogeneous samples is around 0.1 g/kg (0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis where required, this is considered to be at the nominal reporting limit of 0.01 % (w / w).The examination of large sample sizes(500 mL is recommended) may improve the likelihood of identifying ACM in the > 2mm fraction.The NEPM screening level of 0.001 % (w / w) asbestos in soil for FA(friable asbestos) and AF(asbestos fines) then applies where they are able to be quantified by gravimetric procedures.This quantitative screening is not generally applicable to FF(free fibres) and results of Trace Analysis are referred. *NOTE: NATA News March 2014, p.7, states in relation to AS4964: "This is a qualitative method with a nominal reporting limit of 0.01%" and that currently in Australia "there is no validated method available for the quantification of asbestos". Accordingly, NATA Accreditation does not cover the performance of this service (indicated with an asterisk).* *This report is consistent with the analytical procedures and reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended) and the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2009, including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil, June 2011.*

Project Name WYONG DEVELOPMENT
Project ID 754-NTLGE222494
Date Sampled Oct 05, 2018
Report 626046-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP01 0.2	18-No05102	Oct 05, 2018	Approximate Sample 129g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP01 0.8	18-No05103	Oct 05, 2018	Approximate Sample 128g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP02 0.2	18-No05104	Oct 05, 2018	Approximate Sample 209g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP02 0.6	18-No05105	Oct 05, 2018	Approximate Sample 258g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP03 0.2	18-No05106	Oct 05, 2018	Approximate Sample 201g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP03 0.9	18-No05107	Oct 05, 2018	Approximate Sample 137g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP04 0.1	18-No05108	Oct 05, 2018	Approximate Sample 214g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP04 0.9	18-No05109	Oct 05, 2018	Approximate Sample 102g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP05 0.1	18-No05110	Oct 05, 2018	Approximate Sample 137g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP05 1.0	18-No05111	Oct 05, 2018	Approximate Sample 145g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP06 0.1	18-No05112	Oct 05, 2018	Approximate Sample 102g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP06 0.8	18-No05113	Oct 05, 2018	Approximate Sample 67g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP07 0.1	18-No05114	Oct 05, 2018	Approximate Sample 190g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP07 0.9	18-No05115	Oct 05, 2018	Approximate Sample 206g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
QC1	18-No05116	Oct 05, 2018	Approximate Sample 179g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
QC2	18-No05117	Oct 05, 2018	Approximate Sample 230g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Nov 05, 2018	Indefinite

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NATA # 1261 Site # 18217

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NATA # 1261 Site # 20794

Perth
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Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: WYONG DEVELOPMENT
Project ID: 754-NTLGE222494

Order No.:
Report #: 626046
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Nov 5, 2018 12:28 PM
Due: Nov 8, 2018
Priority: 2 Day
Contact Name: Paul Wright

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	TP01 0.2	Oct 05, 2018		Soil	M18-No05102	X
2	TP01 0.8	Oct 05, 2018		Soil	M18-No05103	X
3	TP02 0.2	Oct 05, 2018		Soil	M18-No05104	X
4	TP02 0.6	Oct 05, 2018		Soil	M18-No05105	X
5	TP03 0.2	Oct 05, 2018		Soil	M18-No05106	X
6	TP03 0.9	Oct 05, 2018		Soil	M18-No05107	X
7	TP04 0.1	Oct 05, 2018		Soil	M18-No05108	X
8	TP04 0.9	Oct 05, 2018		Soil	M18-No05109	X
9	TP05 0.1	Oct 05, 2018		Soil	M18-No05110	X

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Address: Lot 101, 19 Warabrook Boulevard
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Project Name: WYONG DEVELOPMENT
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Sample Detail						Asbestos - AS4964
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
10	TP05 1.0	Oct 05, 2018		Soil	M18-No05111	X
11	TP06 0.1	Oct 05, 2018		Soil	M18-No05112	X
12	TP06 0.8	Oct 05, 2018		Soil	M18-No05113	X
13	TP07 0.1	Oct 05, 2018		Soil	M18-No05114	X
14	TP07 0.9	Oct 05, 2018		Soil	M18-No05115	X
15	QC1	Oct 05, 2018		Soil	M18-No05116	X
16	QC2	Oct 05, 2018		Soil	M18-No05117	X
Test Counts						16

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Authorised by:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1816245**	Page	: 1 of 6
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: REHAN BUKHART	Contact	: Graeme Jablonskas
Address	: 19 WARABRROK BOULEVARD WARABROOK NSW, AUSTRALIA 2304	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9609
Project	: 754-NTLGE222494	Date Samples Received	: 10-Oct-2018 09:50
Order number	:	Date Analysis Commenced	: 11-Oct-2018
C-O-C number	: ----	Issue Date	: 16-Oct-2018 16:55
Sampler	: MERRICK JONES		
Site	: WYONG DEVELOPMENT		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QC3	----	----	----	----
			Client sampling date / time	05-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1816245-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**10.5**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**11**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**12**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**14**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**6**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**21**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC3	----	----	----	----
				Client sampling date / time	05-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1816245-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC3	----	----	----	----
				Client sampling date / time	05-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1816245-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**100**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**97.3**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**104**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**104**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**99.5**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**110**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**119**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**116**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**78.8**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**73.3**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**78.7**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1816245**	Page	: 1 of 9
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: REHAN BUKHART	Contact	: Graeme Jablonskas
Address	: 19 WARABRROK BOULEVARD WARABROOK NSW, AUSTRALIA 2304	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9609
Project	: 754-NTLGE222494	Date Samples Received	: 10-Oct-2018
Order number	:	Date Analysis Commenced	: 11-Oct-2018
C-O-C number	: ----	Issue Date	: 16-Oct-2018
Sampler	: MERRICK JONES		
Site	: WYONG DEVELOPMENT		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1976944)									
EM1816218-019	Anonymous	EA055: Moisture Content	----	0.1	%	23.9	24.3	1.97	0% - 20%
EM1816224-001	Anonymous	EA055: Moisture Content	----	0.1	%	6.0	6.6	10.8	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1978369)									
EM1816218-013	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	11	18.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	62	62	0.00	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	7	<5	37.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	77	78	0.00	0% - 50%
EM1816245-001	QC3	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	12	9.51	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	5	19.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	8	29.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	8	44.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	12	17.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	16	24.8	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1978367)									
EM1816126-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.2	0.00	No Limit
EM1816245-001	QC3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1978314)									
EM1816245-001	QC3	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1978314) - continued									
EM1816245-001	QC3	EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1978312)									
EM1816318-005	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.6	0.6	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	0.6	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1816245-001	QC3	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1978312) - continued									
EM1816245-001	QC3	EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1975774)									
EM1816245-001	QC3	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1978313)									
EM1816318-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1816245-001	QC3	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1975774)									
EM1816245-001	QC3	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1978313)									
EM1816318-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	110	<100	11.4	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	110	<50	75.0	No Limit
EM1816245-001	QC3	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1975774)									
EM1816245-001	QC3	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1975774) - continued									
EM1816245-001	QC3	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1978369)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.7	78	107
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	89.7	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.9	78	110
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	91.4	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	93.0	78	106
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.8	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	100	79	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1978367)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.9	77	104
EP068A: Organochlorine Pesticides (OC) (QCLot: 1978314)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	112	65	120
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	112	68	121
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	70	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	64	119
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	56	121
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.7	63	114
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	119	64	121
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	117	68	120
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	117	72	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	69	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	120	71	123
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	113	59	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	119	70	123
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	113	64	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	111	69	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	121	66	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	62	121
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	57	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	85.9	60	124
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	73	120
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	91.3	61	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1978312)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	93.1	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	92.1	70	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1978312) - continued								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	94.1	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	92.4	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	96.1	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	97.8	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	98.6	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	100	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	93.0	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	95.5	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	82.4	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	94.3	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	80.5	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	85.3	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	87.8	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	85.2	68	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1975774)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	91.6	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1978313)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	80.6	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	102	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	92.8	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1975774)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	89.7	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1978313)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	86.7	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	99.6	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	78.8	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1975774)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	94.8	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	101	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	93.9	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	93.0	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	102	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	113	66	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1978369)							
EM1816218-014	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	93.7	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.1	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	81.5	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	103	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	78.6	76	124
		EG005T: Nickel	7440-02-0	50 mg/kg	101	78	120
		EG005T: Zinc	7440-66-6	50 mg/kg	76.7	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1978367)							
EM1816126-013	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	76.6	76	116
EP068A: Organochlorine Pesticides (OC) (QCLot: 1978314)							
EM1816250-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	95.8	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	66.0	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	82.9	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	82.1	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	77.4	23	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	64.9	20	133
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1978312)							
EM1816250-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	88.5	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	97.0	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1975774)							
EM1816245-001	QC3	EP080: C6 - C9 Fraction	----	28 mg/kg	63.7	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1978313)							
EM1816245-001	QC3	EP071: C10 - C14 Fraction	----	806 mg/kg	78.9	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	99.5	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	89.2	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1975774)							
EM1816245-001	QC3	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	62.0	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1978313)							
EM1816245-001	QC3	EP071: >C10 - C16 Fraction	----	1160 mg/kg	84.5	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	96.4	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	74.9	44	126
EP080: BTEXN (QCLot: 1975774)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 1975774) - continued							
EM1816245-001	QC3	EP080: Benzene	71-43-2	2 mg/kg	76.3	50	136
		EP080: Toluene	108-88-3	2 mg/kg	79.2	56	139

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1816245**	Page	: 1 of 4
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: REHAN BUKHART	Telephone	: +61-3-8549 9609
Project	: 754-NTLGE222494	Date Samples Received	: 10-Oct-2018
Site	: WYONG DEVELOPMENT	Issue Date	: 16-Oct-2018
Sampler	: MERRICK JONES	No. of samples received	: 1
Order number	:	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
QC3	**05-Oct-2018**	**----**	----	----	**11-Oct-2018**	19-Oct-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QC3	**05-Oct-2018**	**12-Oct-2018**	03-Apr-2019	✓	**12-Oct-2018**	03-Apr-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QC3	**05-Oct-2018**	**12-Oct-2018**	02-Nov-2018	✓	**15-Oct-2018**	02-Nov-2018	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
QC3	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
QC3	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
QC3	**05-Oct-2018**	**11-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	19-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
QC3	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
QC3	**05-Oct-2018**	**11-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	19-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
QC3	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
QC3	**05-Oct-2018**	**11-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	19-Oct-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Reference No. _____

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey

Consigning Office: WARWICK
Report Results to: merrick jones
Invoices to:
Mobile: 0422 88224 Email: merrick.jones @coffey.com
Phone: Email: @coffey.com

Project No: 754-WTLLK222494 Task No: 110
Project Name: WYONG DEVELOPMENT Laboratory:
Sampler's Name: MERRICK JONES Project Manager: REHAN BUKHARI
Special Instructions: PLEASE TRANSFER QC3 to ALS

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	BG
	TP01 0.2	5/10/18	AM	S	J	5 DAY.	✓
	TP01 0.8						✓
	TP02 0.2						✓
	TP02 0.6						✓
	TP03 0.2						✓
	TP03 0.9						✓
	TP04 0.1						✓
	TP04 0.9						✓
	TP05 0.1						✓
	TP05 1.0						✓
	TP06 0.1						✓
	TP06 0.8						✓
	TP07 0.1						✓
	TP07 0.9						✓
	QC1						
	QC2						
	QC3 (ALS) (1)						

1

NOTES

Environmental Division
Melbourne
Work Order Reference
EM1816245

Telephone : +61-3-8549 9600

PLEASE TRANSFER QC3 to ALS (BG only)

RELINQUISHED BY		RECEIVED BY	
Name: MERRICK JONES	Date: 8/10/18 →	Name: SUE	Date: 8/10/18
Coffey Environments	Time:	Company:	Time: 2:30PM
Name: D JONES	Date: 10/10/18 →	Name: Nina	Date: 10/10/18
Company: EUROFINS	Time:	Company: ALS	Time: 9:50

Sample Receipt Advice: (Lab Use Only)
All Samples Recieved in Good Condition ☐
All Documentation is in Proper Order ☐
Samples Received Properly Chilled ☐
Lab. Ref/Batch No.

*Container Type & Preservation Codes: **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative